

International meteorological organization—Continued.

Sous-commission pour l'organisation radiométéorologique des océans. 2me. session. Locarno. Octobre 1931. Leyde. 1932. p. 366–378b. 24½ cm. (Appendice L. No. 10 d.)

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SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING JULY, 1932

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For a description of instruments employed and their exposures, the reader is referred to the January, 1932, REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged well above normal values for July at all three stations at which normal incidence measurements are made.

Table 2 shows an excess in the total solar radiation received on a horizontal surface at all pyrheliometric stations except La Jolla and Twin Falls. The excess is very marked at Washington, Madison, Chicago, New York, and Fresno.

Table 3 shows diminished turbidity for the month as would be expected with the decided increase in radiation receipt at Washington.

Polarization measurements obtained on seven days at Washington give a mean of 62 per cent and a maximum of 66 per cent on the 30th. At Madison, measurements obtained on 14 days give a mean of 60 per cent and a maximum of 67 per cent on the 12th. These are average July values for Madison, but for Washington the values are considerably above the July normals.

Unquestionably the decided increase in solar radiation received, owing to the greater transmissibility of the atmosphere during July throughout the country, has been a factor in the extreme dryness of the sections which are deficient in precipitation.

TABLE 1.—*Solar radiation intensities during July, 1932*

[Gram calories per minute per square centimeter of normal surface]

Washington, D. C.

Date	Sun's zenith distance										Noon
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
	75th mer. time	Air mass					Local mean time				
	e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.
July 2	9.83	0.65	0.77	1.22	1.49						8.48
July 5	10.21		0.97								9.47
July 7	16.79					1.15					16.20
July 8	14.10			1.13	1.35						10.97
July 9	11.38	0.68	0.77	0.91	1.10	1.37					9.47
July 11	16.20		0.83	0.93	1.12	1.42					16.79
July 13	13.13			0.99	1.39	1.10					10.59
July 18	12.68		1.07								12.24
July 25	13.61			1.15	1.40						9.47
July 28	18.59		0.71	0.94							17.37
July 30	9.83	(0.68)	0.75	0.94	1.07	1.41	(1.12)				8.48
Means		+0.09	+0.08	+0.16	+0.16	+0.21	+0.13				
Departures		+0.01	+0.05	+0.10	+0.10	+0.11	+0.01	+0.01	+0.01	+0.01	

TABLE 1.—*Solar radiation intensities during July, 1932*—Contd

[Gram calories per minute per square centimeter of normal surface]

Madison, Wis.

Date	Sun's zenith distance										mm.
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
	75th mer. time	Air mass					P. M.				
	e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.
July 2	7.87					1.29	1.54				7.87
July 6	14.60					0.99	1.17	1.40			13.13
July 7	13.61							1.42			9.83
July 8	11.81					0.99	1.15	1.38			10.97
July 11	10.59						1.19	1.43	1.13	1.05	10.21
July 12	9.47					0.89	1.00	1.18	1.44	1.09	13.61
July 13	18.59					0.82	1.02	1.34	1.02	0.78	19.89
July 14	13.13					0.64					22.00
July 15	18.59					0.71	0.81	1.07	1.26		15.65
July 18	13.61							1.33	1.13	0.94	18.59
July 20	14.60					0.86	1.03				17.96
July 21	19.23					0.74			1.26		10.59
July 22	10.21							1.41	1.25	1.06	10.59
July 23	10.97					0.86	1.04	1.21	1.43		10.59
July 26	16.65					0.73					19.89
July 27	10.97						1.19	1.34		0.79	11.81
July 28	16.79					0.84	0.97				13.13
July 29	9.14					0.95	1.12	1.24	1.47		9.14
July 30	10.59					0.92	1.06	1.20	1.44		10.59
Means						0.81	0.97	1.16	1.40	1.15	0.92
Departures						+0.01	+0.05	+0.10	+0.10	+0.11	+0.01

Lincoln, Nebr.

Date	Sun's zenith distance										mm.
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
	75th mer. time	Air mass					P. M.				
	e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.
July 1	9.47							1.47	1.26	1.11	0.98
July 7	16.20							1.44	1.23	1.05	0.88
July 9	18.59								1.09		20.57
July 12	17.37							1.42	1.14	0.97	0.82
July 13	17.37							1.36			18.59
July 14	18.59					0.81	0.95	1.12			14.60
July 19	16.79					0.63	0.79	1.01	1.30		16.20
July 21	18.59							1.11	1.33		18.59
July 22	16.20								1.21	1.02	13.61
July 26	18.59	0.75	0.85	1.04	1.22	1.45	1.15	0.95	0.83	0.71	14.10
July 27	16.20							1.38	1.15	0.97	0.83
July 28	18.59					0.78	0.92	1.07			17.37
Means		(0.75)	0.78	0.93	1.10	1.39	1.15	0.98	0.83	0.74	
Departures		±0.00	±0.00	+0.03	+0.02	+0.06	+0.08	+0.09	+0.07	+0.02	

¹ Extrapolated.

TABLE 2.—Average daily totals of solar radiation (direct+diffuse) received on a horizontal surface

Week beginning	Gram calories per square centimeter												
	Washington	Madison	Lincoln	Chicago	New York	Fresno	Pittsburgh	Fairbanks	Twin Falls	La Jolla	Gainesville	Miami	New Orleans
1932	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.
July 2	500	502	563	454	528	720	435	449	712	290	678	606	369
July 9	591	618	636	587	653	721	572	459	516	479	588	601	385
July 16	465	590	595	559	527	715	500	357	580	406	440	577	358
July 23	554	571	527	597	559	697	529	442	578	457	439	550	322
Departures from weekly normals													
July 2	-2	-29	-14	-5	+98	+36	-49	-	+90	-128	+152	+44	-
July 9	+99	+82	+60	+156	+230	+49	+78	-	-76	+68	+76	+40	-
July 16	-8	+71	+25	+125	+112	+63	+8	-	-8	-36	-68	+10	-
July 23	+64	+68	-17	+159	+150	+71	+27	-	-5	+17	-71	-20	-
Accumulated departures on July 29, 1932													
	+3,332	+723	-1,391	+11,657	+14,114	+5,506	+3,374	-	-6,505	+3,208	-	+3,068	-

TABLE 3.—Solar radiation measurements, and determinations of atmospheric turbidity factor, β . Washington, D. C., July, 1932

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, Superintendent United States Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, Perkins, and Mount Wilson Observatories. The differences of longitude are measured from central meridian, positive west. The north latitudes are plus. Areas are corrected for foreshortening and are expressed in millions of sun's visible hemisphere. The total area, including spots and groups, is given for each day in the last column]